Battling Leptospirosis

Why in news?

\n\n

The researchers at the Yale School of Public Health (YSPH) are involved in a major genome-sequencing effort for 20 Leptospira species.

\n\n

What is Leptospirosis?

\n\n

\n
- It is a zoonotic disease i.e spread from animals to humans, caused by bacteria of the genus Leptospira.
\n
- It is commonly known a rat fever and it affects both humans as well as other animals.
\n
- The infection is generally transmitted to humans by water that has been contaminated **by animal urine** which comes in contact with unhealed breaks in the skin, the eyes, or with the mucous membranes.
\n
- Leptospira interrogans spreads under conditions of stagnant water, flood water, humidity, and proximity between man and beast.
\n
- In most of the cases, leptospirosis only causes mild flu-like symptoms, such as headache, chills and muscle pain.
\n
- However, in some cases the infection is more severe and can cause life-threatening problems, including organ failure and internal bleeding.
\n
- Severe form of leptospirosis is known as **Weil's disease**.
\n

\n\n

What is a genome?

\n\n

\n
- A genome is an organism’s complete set of DNA, including all of its genes.
\n
- It includes the genes (the coding regions), the noncoding DNA and the genetic material of the mitochondria and chloroplasts.
\n
- Each genome contains all of the information needed to build and maintain that organism.
\n

\n\n

What is the recent study about?

\n\n

\n
- In 2016 leptospirosis cases were reported in India, even before the onset of the monsoon.
\n
- 2017 is facing the prospect of erratic monsoons.
\n
- Also there is no major improvement nationwide in waste-water and flood-water management.
\n
- So the leptospirosis toll is expected to be greater.
\n
- Therefore the study is aimed to improve the odds of controlling this disease by understanding the genetic determinants of Leptospira pathogenesis.
\n

\n\n

What are the findings?

\n\n

\n
- One accomplishment is the development of a pangenomic signalling database.
\n
- This has enabled researchers to explore the molecular mechanisms and regulatory pathways underlying Leptospira virulence.
\n

\n\n

\n
- The research also focuses on a “One Health” approach.
\n
- This approach integrates efforts to predict and control a disease at the human-animal-ecosystem interface, which is the key to defeat re-emerging zoonotic diseases such as **leptospirosis.**
\n
- It stresses upon identifying transmission sources, stratify disease risk and prioritise prevention in the resource-poor settings of Indian slums.
\n
- It also highlights the fact that across Primary Health Centres in India, rapid diagnostic tests are often used instead of serological tests due to lack of adequate trained personnel.
\n
- These rapid tests may not reach the optimal sensitivity until at least a week after onset of fever.
\n
- The sensitivity of the tests is low during the acute stage.
\n
- Therefore these rapid diagnostic tests should be used with caution before ruling out leptospirosis.
\n

\n\n

\n\n

Source: The Hindu

\n

